

I claim:

- 1 1. A circuit arrangement for detecting the state of at least one electrical switch
2 comprising:
 - 3 a) in each case a set input and a sensor output, each of which is assigned to a
4 respective electrical switch,
 - 5 b) wherein the respective switch can connect the sensor output to a first
6 potential via a first current path when a signal with the value logic "1" is
7 present at the set input and can connect the sensor output via a second
8 current path to a second potential when a signal with the value logic "0" is
9 present at the set input, and
 - 10 c) wherein a wake-up signal is generated at a wake-up signal output if a
11 current which is greater than a predetermined threshold current is detected
12 in the first or second current path.
- 1 2. The circuit arrangement according to claim 1, wherein for each of the at least
2 one electrical switches, a push-pull output stage is provided whose input of
3 which is connected directly or indirectly to the set input and whose output is
4 connected directly or indirectly to the sensor output, wherein the output of the
5 push-pull output stage is connected to the first potential if a signal with the value
6 logic "1" is present at the set input and to the second potential if a signal with
7 the value logic "0" is present at the set input .
- 1 3. The circuit arrangement according to claim 2, wherein a resistor is provided in
2 each case in a first and second current path, the voltage drop of said resistor
3 being used in each case to generate the wake-up signal in the event of a current
4 flow.
- 1 4. The circuit arrangement according to claim 1, wherein the resistors each lie in
2 current paths commonly used for a plurality of push-pull output stages.

1 5. The circuit arrangement according to claim 1, wherein the at least one sensor
2 output for use with a 2-pole electrical switch, the other switch contact of which
3 is connected to the first or second potential, is connected via a resistor to the
4 respective other potential preferably via an additional controllable switch.

- 1 6. A microcontroller circuit arrangement comprising:
 - 2 - a circuit arrangement for detecting the state of at least one electrical switch
 - 3 comprising:
 - 4 a) in each case a set input and a sensor output, each of which is assigned to a
 - 5 respective electrical switch,
 - 6 b) wherein the respective switch can connect the sensor output to a first
 - 7 potential via a first current path when a signal with the value logic "1" is
 - 8 present at the set input and can connect the sensor output via a second
 - 9 current path to a second potential when a signal with the value logic "0" is
 - 10 present at the set input, and
 - 11 c) wherein a wake-up signal is generated at a wake-up signal output if a
 - 12 current which is greater than a predetermined threshold current is detected
 - 13 in the first or second current path,
 - 14 - wherein a digital control output of the microcontroller is connected in each case to a
 - 15 set input of the state-detection circuit arrangement,
 - 16 - wherein the wake-up signal output of the circuit arrangement is connected to the
 - 17 wake-up signal input of the microcontroller, and
 - 18 - wherein the microcontroller determines the switch setting or the change to the switch
 - 19 setting of the at least one switch from the states of the digital control outputs and
 - 20 the state of the wake-up signal, and if necessary triggers dependent actions as
 - 21 required as a function of the switch setting or the change to the switch setting.

- 1 7. The microcontroller circuit arrangement according to claim 6, wherein after
- 2 receiving a wake-up signal, the microcontroller sets the states of one or more
- 3 digital control outputs such that no wake-up signal is supplied to it by the state-
- 4 detection circuit arrangement.
- 1 8. The microcontroller circuit arrangement according to claim 7, wherein the
- 2 microcontroller determines the switch setting or the change to the switch setting
- 3 of the at least one switch solely from the states of the digital control outputs.

1 9. The microcontroller circuit arrangement according to claim 7, wherein the
2 microcontroller has a hardware counter unit or a counter unit simulated by
3 software, wherein the counter outputs are connected to the set inputs of the state-
4 detection circuit arrangement, and wherein the counting process of the counter
5 unit is started by the active wake-up signal supplied to the counter unit and
6 stopped by the inactive wake-up signal supplied to the counter unit.

- 1 10. A method for detecting the state of at least one electrical switch comprising the
2 steps of:
 - 3 a) providing a set input and a sensor output for each electrical switch,
 - 4 b) connecting the sensor output to a first potential via a first current path
5 when a signal with the value logic "1" is present at the set input, or
 - 6 c) connecting the sensor output via a second current path to a second
7 potential when a signal with the value logic "0" is present at the set input,
8 and
 - 9 d) generating a wake-up signal at a wake-up signal output if a current which
10 is greater than a predetermined threshold current is detected in the first or
11 second current path.
- 1 11. The method according to claim 10, wherein steps b) and/or c) comprise the steps
2 of:
3 connecting the input of a push-pull output stage directly or indirectly to the set
4 input and connecting the output of the push-pull output stage directly or
5 indirectly to the sensor output, wherein the output of the push-pull output stage
6 is connected to the first potential if a signal with the value logic "1" is present at
7 the set input and to the second potential if a signal with the value logic "0" is
8 present at the set input .
- 1 12. The method according to claim 11, further comprising the step of providing a
2 resistor in each case in a first and second current path, the voltage drop of said
3 resistor being used in each case to generate the wake-up signal in the event of a
4 current flow.
- 1 13. The method according to claim 12, wherein the resistors each lie in current paths
2 commonly used for a plurality of push-pull output stages.

- 1 14. The method according to claim 10, further comprising the step of connecting the
- 2 at least one sensor output for use with a 2-pole electrical switch, the other switch
- 3 contact of which is connected to the first or second potential, via a resistor to the
- 4 respective other potential.

- 1 15. The method according to claim 14, wherein the step of connecting the at least
- 2 one sensor output is performed via an additional controllable switch.